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tional, social and industrial organization; its disaster is its military preparedness, which gave power to the military caste and led them to make war when and as they thought it could be waged victoriously. The strength of Great Britain on the seas is in its commerce, of which dreadnaughts are merely a dangerous symbol. The strength of a nation, even when at war, is not in armaments that can be purchased, but in its people and their institutions.

SCIENCE AND NATIONAL STRENGTH

It might have been supposed that a discussion on national defense and development before the American Association for the Advancement of Science would have been concerned chiefly with emphasizing the importance of scientific education, scientific research and scientific organization as leading factors in the maintenance of peace and of national efficiency in case of war. If the battle of Waterloo was won on the playgrounds of the English public schools, it may be that other battles have been lost in the colleges of Oxford. At all events the complaint is made in England that its relative lack of success is due to its neglect of science. The classically trained dilettante, the political doctrinaire, the lawyer politician, the military martinet, are not fit leaders of a nation. The strength of this nation is in its engineers and physicians, in its scientific men, few though they are, in the great mass of the people engaged in productive agriculture and industry. We have shown what we can do in our railways, our automobiles, our telephones, what we can not do in our municipal and state governments, an admixture of success and failure in our schools and in our industrial organization.

A billion dollars spent, as is proposed, on the army and navy, as now organized, would be an incitement to war and would only be of moderate use in a strictly defensive war. The armaments would soon become obsolete and other billions would be called for. A billion dollars spent on scientific education, on scientific research, on public health, or on public works, would be money invested in the way yielding the largest returns, and would accomplish more than armaments to make the nation strong in defense.

As the writer of this note urged before the war, we should have the best army for defense and improved police forces if all local police were soldiers, one twelfth of their wages being paid by the nation and one month annually being spent in camps and drills. Idling in barracks is a method for the promotion of war, drunkenness and disease. The engineering corps, the health service and the commissariat are the most important factors in modern warfare. Engineers, health officers, inspectors of food and others employed by the nation, the states and the municipalities should be at the same time officers in the army and those under them enlisted men. A well-organized and efficient army for defense would thus be maintained at comparatively small expense and be an institution for education instead of for demoralization.

The navy should be converted into a merchant marine, carrying a postal, express, freight and passenger service to every port in the world. At the cost of an idle navy five to ten times as many ships and men could be maintained and employed in useful work. In case of war swift ships and experienced men would win over dreadnaughts. Shipyards and factories for armaments and ammunition should be owned by the nation and manned by officers and enlisted men. The army and the navy can be made self-supporting nearly as easily as the postoffice.

If we had for the past three years employed a large force of men on the Mexican border to build railways and roads, irrigation dams and other public works, it would probably have been a good investment. The net cost would certainly have been less than maintaining there an idle army, and our neighbors would have learned from us the ways of industry and peace instead of being irritated by an apparent threat. There would probably have been no raid; if it had been necessary for us to punish raiders it could have been done more effectively and with less friction than by the army as at present organized.

It might well be wished that instead of listening to Mr. Wise Wood and other frightened gentlemen, it were possible for the American Association for the Advancement of Science to use its influence to teach the president, the congress and the people that education, scientific research and the applications of science in agriculture and in industry, in the promotion of health and the prevention of waste and vice, are the ways to develop the greatness of a nation, to make it potent in maintaining peace, unconquerable in a war of defense.

SCIENTIFIC ITEMS

We record with regret the death of Ivan Pavlov, the eminent Russian physiologist; of Sir William Turner, principal of Edinburgh University, distinguished as an anatomist, and of Dr. J. Wilhelm Richard Dedekind, the German mathematician.

The Hébert Prize of the Paris Academy of Sciences has been awarded to Professor M. I. Pupin, of Columbia University, for his theoretical and experimental researches in electricity.—The William H. Nichols medal has been presented to Dr. Claud S. Hudson by the New York section of the American Chemical Society.—The Albert medal of the Royal Society of Arts has been presented to Sir J. J. Thomson, ''for his researches in chemistry and physics and their application to the advancement of arts, manufactures and commerce.''

The forty-fifth anniversary of its establishment was celebrated on February 9 by the United States Bureau of Fisheries, with the unveiling of a tablet in memory of its founder, Spencer Fullerton Baird, presented by his associates and followers. The bronze tablet bears a basrelief of Professor Baird with the inscription: He devoted his life to the public service and through the application of science to fish culture and the fisheries gave his country world-wide distinction.